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Water Supply Outlook For Arizona



SOIL CONSERVATION SERVICE
U.S. DEPARTMENT OF AGRICULTURE

Cooperating with

SALT RIVER VALLEY WATER USERS ASSOCIATION
and ARIZONA WATER COMMISSION

AS OF
FEB. 1, 1981

TO RECIPIENTS OF WATER SUPPLY OUTLOOK REPORTS:

Most of the usable water in western states originates as mountain snowfall. This snowfall accumulates during the winter and spring, several months before the snow melts and appears as streamflow. Since the runoff from precipitation as snow is delayed, estimates of snowmelt runoff can be made well in advance of its occurrence. Streamflow forecasts published in this report are based principally on measurement of the water equivalent of the mountain snowpack.

Forecasts become more accurate as more of the data affecting runoff are measured. All forecasts assume that climatic factors during the remainder of the snow accumulation and melt season will interact with a resultant average effect on runoff. Early season forecasts are therefore subject to a greater change than those made on later dates.

The snow course measurement is obtained by sampling snow depth and water equivalent at surveyed and marked locations in mountain areas. A total of about ten samples are taken at each location. The average of these are reported as snow depth and water equivalent. These measurements are repeated in the same location near the same dates each year.

Snow surveys are made monthly or semi-monthly from January 1 through June 1 in most states. There are about 1900 snow courses in Western United States and in the Columbia Basin in British Columbia. Networks of automatic snow water equivalent and related data sensing devices, along with radio telemetry are expanding and will provide a continuous record of snow water and other parameters at key locations.

Detailed data on snow course and soil moisture measurements are presented in state and local reports. Other data on reservoir storage, summaries of precipitation, current streamflow, and soil moisture conditions at valley elevations are also included. The report for Western United States presents a broad picture of water supply outlook conditions, including selected streamflow forecasts, summary of snow accumulation to date, and storage in larger reservoirs.

Snow survey and soil moisture data for the period of record are published by the Soil Conservation Service by states about every five years. Data for the current year is summarized in a West-wide basic data summary and published about October 1 of each year.

COVER PHOTO: SNOW SURVEYORS MAKING SPECIAL MEASUREMENTS NEAR MT. ST. HELENS VOLCANO IN WASHINGTON, APRIL 1980.

PUBLISHED BY SOIL CONSERVATION SERVICE

The Soil Conservation Service publishes reports following the principal snow survey dates from January 1 through June 1 in cooperation with state water administrators, agricultural experiment stations and others. Copies of the reports for Western United States and all state reports may be obtained from Soil Conservation Service, West Technical Service Center, Room 510, 511 N.W. Broadway, Portland, Oregon 97209.

Copies of state and local reports may also be obtained from state offices of the Soil Conservation Service in the following states:

STATE	ADDRESS
Alaska	Room 129, 2221 East Northern Lights Blvd., Anchorage, Alaska 99504
Arizona	Room 3008, Federal Building, 230 N. First Ave., Phoenix, Arizona 85025
Colorado (N. Mex.)	P. O. Box 17107, Denver, Colorado 80217
Idaho	Room 345, 304 N. 8th. St., Boise, Idaho 83702
Montana	P. O. Box 98, Bozeman, Montana 59715
Nevada	P. O. Box 4850, Reno, Nevada 89505
Oregon	1220 S. W. Third Ave., Portland, Oregon 97204
Utah	4420 Federal Bldg., 125 South State St., Salt Lake City, Utah 84138
Washington	360 U. S. Court House, Spokane, Washington 99201
Wyoming	P. O. Box 2440, Casper, Wyoming 82602

PUBLISHED BY OTHER AGENCIES

Water Supply Outlook reports prepared by other agencies include a report for California by the Snow Surveys Branch, California Department of Water Resources, P.O. Box 388, Sacramento, California 95802 --- for British Columbia by the Ministry of the Environment, Water Investigations Branch, Parliament Buildings, Victoria, British Columbia V8V 1X5 --- for Yukon Territory by the Department of Indian and Northern Affairs, Northern Operations Branch, 200 Range Road, Whitehorse, Yukon Territory Y1A 3V1 --- and for Alberta, Saskatchewan, and N.W.T. by the Water Survey of Canada, Inland Waters Branch, 110-12 Avenue S.W., Calgary, Alberta T3C 1A6.





Irrigators May Face a Water Shortage This Year

SNOW COURSE MEASUREMENTS MADE ON FEBRUARY 1, 1981, INDICATE THAT LOW FLOWS WILL OCCUR IN MANY STREAMS. STUDY THE ATTACHED WATER SUPPLY FORECAST CAREFULLY FOR STREAM FLOW AND/OR RESERVOIR STORAGE FIGURES THAT CONCERN YOUR AREA. KEEP IN TOUCH WITH YOUR IRRIGATION DISTRICT OR OTHER OFFICIALS FOR ESTIMATES OF THE SUPPLY AVAILABLE TO YOU. YOU MAY FIND YOU'LL NEED TO CHANGE CROPS, REDUCE PLANTED ACREAGE, ADJUST TIMING OF WATER APPLICATION, OR IMPROVE EFFICIENCY OF YOUR WATER DISTRIBUTION SYSTEM.

THESE ARE SOME OF THE EARLY DECISIONS AND PLANS YOU MAY HAVE TO MAKE:

CHANGE CROPS	Plant crops which require less water.
REDUCE ACREAGE	Reduce your crop acreage. This will help you make better use of your water as well as reduce the amount of seed and fertilizer you need to buy. Be sure to use cover crops to prevent wind erosion on land you don't irrigate.
CONSIDER ENERGY COSTS	Even if you are able to pump supplemental water, you should compare inflated energy costs with anticipated crop earnings. You may be money ahead to reduce acreage or change crops.
CHECK IRRIGATION SYSTEM	Check your irrigation systems carefully. Make certain that ditches have no water-wasting weeds or debris to slow delivery, sprinkler heads don't have leaks, pipes have tight connections, and pumps work properly. If new parts or equipment are needed, buy them early.
PLANT BEST LAND	Plant only your best land - it makes most efficient use of water. If your soil has been mapped, local Soil Conservation Service (SCS) personnel can guide you. If not, they can still give you general information.
TECHNICAL ASSISTANCE?	Maintain close contact with the Soil Conservation Service or your local Conservation District for the latest water supply forecast, and for soil information. SCS has water conservation pamphlets and other information that can help irrigators get by with less water.
COST-SHARE OR LOANS?	Maintain close contact with local offices of Agricultural Stabilization and Conservation Service (ASCS) and the Farmers Home Administration (FmHA). If a drought situation develops, funds might be made available for cost-sharing or loans to help you apply special water conservation practices.
CROPS, FEED, FERTILIZER, OR MARKETING QUESTIONS?	Contact your local Cooperative Extension Service office for crop selection alternatives, fertilizer recommendations, feed supply conditions, and marketing outlook.

SCS, ASCS, AND FmHA ARE LISTED IN THE PHONE BOOK UNDER "U.S. GOVERNMENT, AGRICULTURE, DEPARTMENT OF." COOPERATIVE EXTENSION SERVICE IS USUALLY LISTED WITH LOCAL COUNTY OFFICES.

WATER SUPPLY OUTLOOK FOR ARIZONA

**and
FEDERAL - STATE - PRIVATE COOPERATIVE SNOW SURVEYS**

Issued by

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**CHIEF
SOIL CONSERVATION SERVICE
WASHINGTON, D.C.**

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PHOENIX, ARIZONA

In Cooperation with

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SALT RIVER VALLEY WATER
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Report prepared by

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Standard snow courses and aerial depth markers provide information for water supply forecasting.

ARIZONA SUMMARY

As of
February 1, 1981

STREAMFLOW IN ARIZONA FOR THE FEBRUARY-MAY PERIOD IS STILL FORECAST TO BE FAR BELOW AVERAGE. DRY WEATHER CONDITIONS PREVAILED THROUGHOUT THE STATE IN JANUARY. STORAGE IN MAJOR RESERVOIRS IS STILL ABOVE AVERAGE.

WATER SUPPLY

Below average streamflow is forecast for the February-May period in Arizona and western New Mexico. Major streams are forecast to produce the following percent of average flow: Salt River, 28%; Verde River, 38%; Tonto Creek, 24%; Gila River, 31%; San Francisco River, 28%; and Little Colorado River, 35%. In contrast to the below average streamflow forecasts, storage in major reservoirs is above average. Users having access to these reservoirs should have adequate water supplies. Users relying on direct diversion can expect water shortages.

SNOW COVER

The snowpack of central Arizona and western New Mexico continues to be much below average. Snow water equivalent on index snow courses on the Verde River watershed is 12% of average; on the Salt River, 15% of average; on the Gila River, 12%; and on the upper Little Colorado River, 30%.

PRECIPITATION

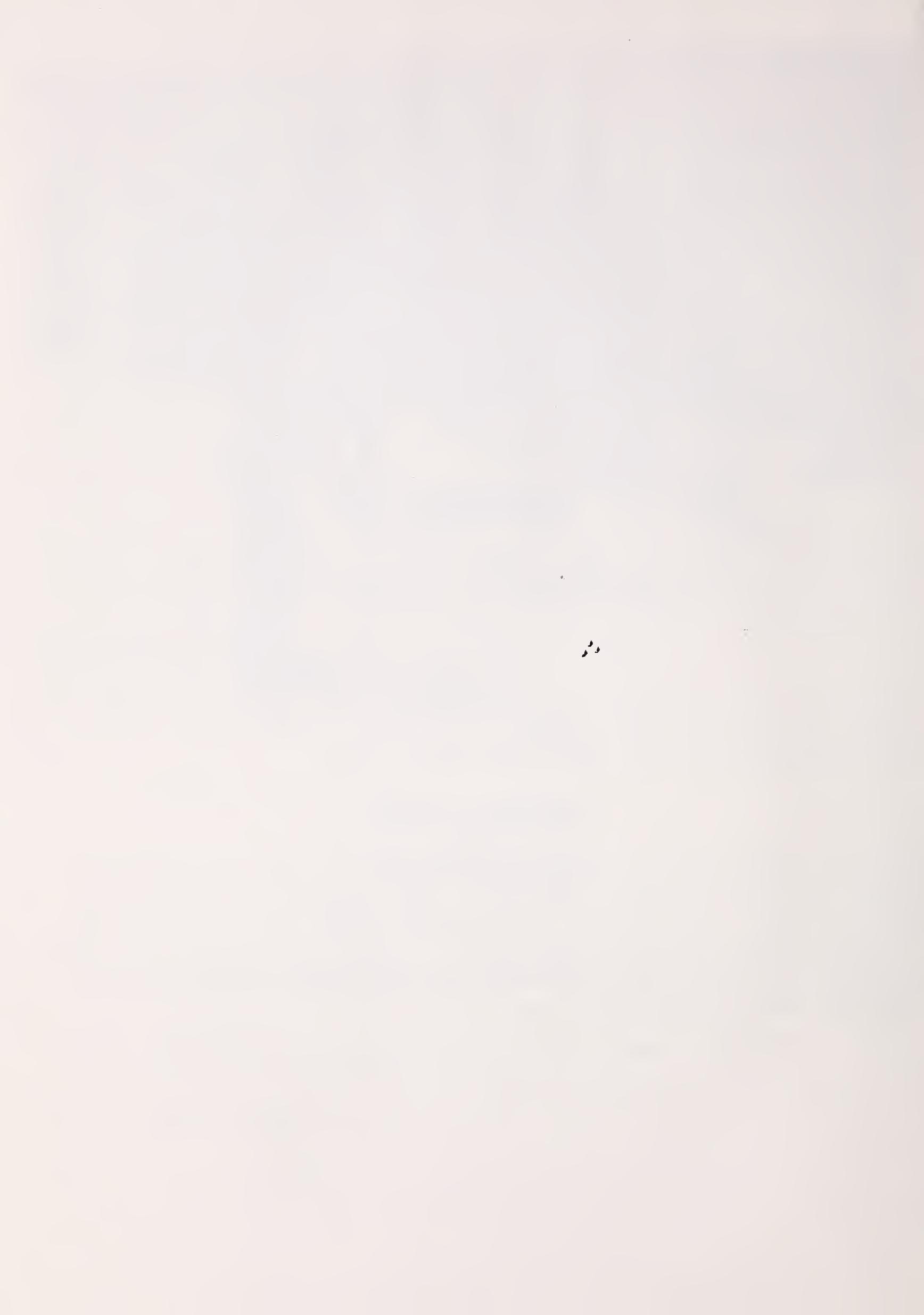
January precipitation was below average. Precipitation for the winter season November through January now ranges from 20% to 60% of average at stations on the higher elevation watersheds. The series of storms which moved through northern Arizona during the last week of January did not produce much precipitation.

STREAMFLOW

Inflow to the Salt River Project was reported to be nearly 39,000 acre-feet in January. This was about 41% of average for this month. January flow on the Gila River and San Francisco River was also near 40% of average.

RESERVOIR STORAGE

Reservoir storage is still above average on most major water supply impoundments. Salt River Project reservoirs contain about 1,480,000 acre-feet. This is 72% of capacity and 113% of average for February 1. San Carlos Reservoir holds 658,000 acre-feet which is 61% of capacity. Lake Pleasant has 66% capacity storage with 103,000 acre-feet. Four major reservoirs on the Colorado River contain 4,954,000 acre-feet, or 92% of capacity. Lyman Reservoir on the Little Colorado River reports 23,400 acre-feet at 76% capacity. There is no water currently stored in Painted Rock Reservoir on the Gila River.



ABOUT FEBRUARY
STREAMFLOW FORECASTS 1, 1981

BASIN, STREAM and/or FORECAST POINT	THIS YEAR		PAST RECORD	
	FORECAST Thousand Acre Feet	Percent of Average	FORECAST PERIOD	THOUSAND ACRE FEET Last Year
<u>SALT RIVER DRAINAGE</u>				
Salt near Roosevelt	86	28	Feb-May	1,053.7
"	15	30	February	493.3
Tonto Creek near Roosevelt	10	24	Feb-May	319.0
"	2	15	February	233.9
Verde River above Horseshoe	70	38	Feb-May	897.2
"	16	38	February	629.9
Total Salt River Project Streams	166	31	Feb-May	2,269.9
"	33	31	February	1,357.1
<u>GILA RIVER DRAINAGE</u>				
Gila River at Calva	15	16	Feb-May	303.8
Gila River near Gila	22	42	Feb-May	74.0
Gila River near Solomon	42	32	Feb-May	361.2
"	12.2	35	February	218.9
Gila River near Virden	23	35	Feb-May	101.5
Frisco River at Clifton	18	28	Feb-May	170.8
Frisco River at Glenwood	7.5	25	Feb-May	76.4
<u>LITTLE COLORADO RIVER DRAINAGE</u>				
Little Colo. River above Lyman Dam	3.9	35	Feb-June	---
Greer	2.4	32	Feb-June	11.4
<u>GRANITE CREEK DRAINAGE</u>				
Granite Creek	1.0	---	Feb-May	---
Willow Creek	0.6	---	Feb-May	---
<u>MIMBRES RIVER DRAINAGE</u>				
Mimbres River near Mimbres	0.6	---	Feb-May	---
<u>COLORADO RIVER DRAINAGE</u>				
Virgin River near Littlefield	31	65	Apr-June	151.9
Lake Mary Inflow	.7	14	Feb-May	---
⁺ Based on 15-year period, 1963-77				
* Average for less than 15 years.				
- 2 -				
1963-1977 period.				

WATER SUPPLY INVENTORY SALT RIVER VALLEY SYSTEM

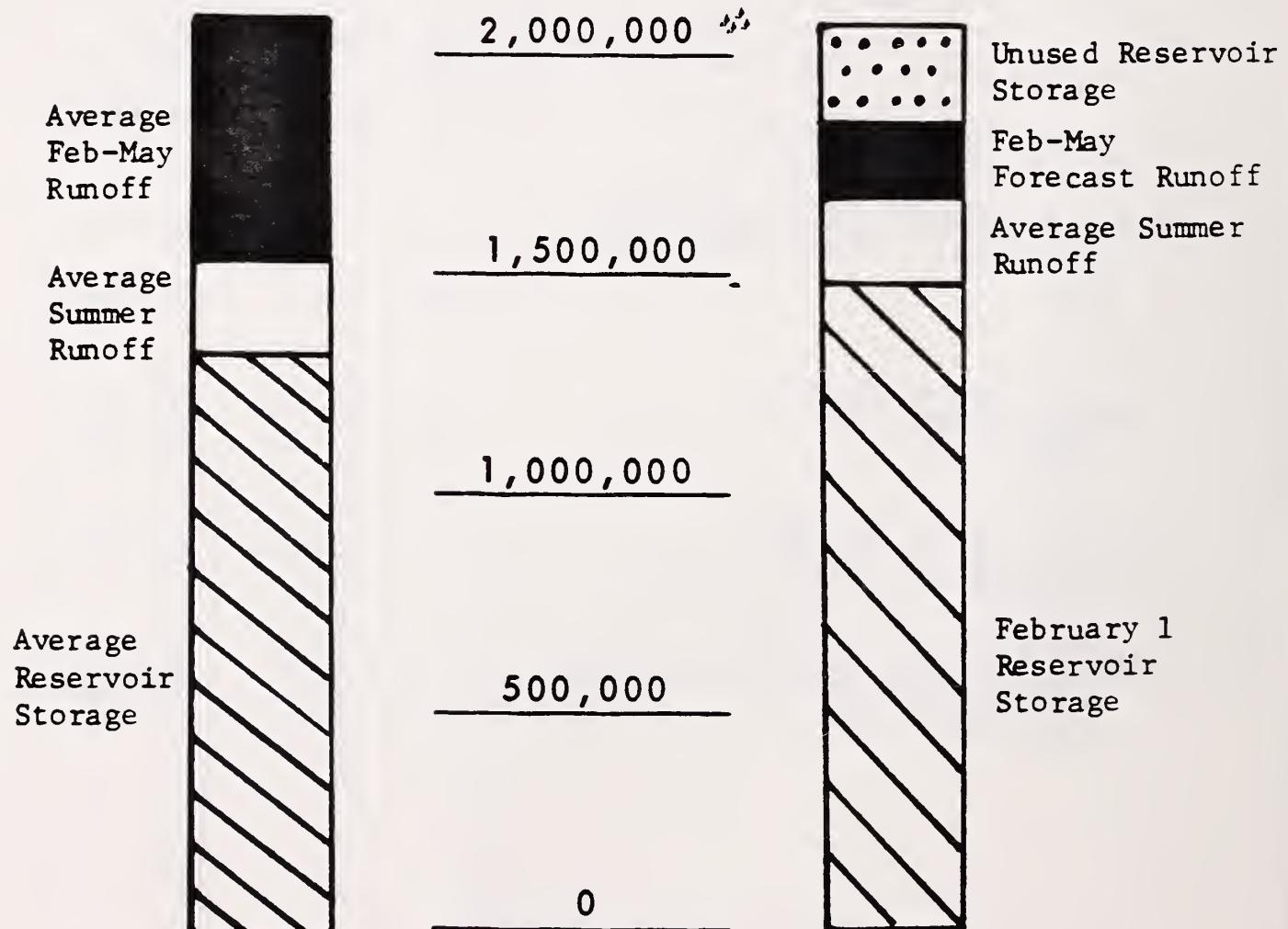
IN ACRE-FEET

3,000,000

AVERAGE WATER SUPPLY
ON FEBRUARY 1

ANTICIPATED WATER
SUPPLY, FEBRUARY 1,
1981

2,500,000



Based on Present Storage + Forecast Spring Runoff + Average Summer Runoff

RESERVOIR STORAGE (Thousand Acre Feet) FEBRUARY 1, 1981

BASIN or STREAM	RESERVOIR	Usable Capacity	Usable Storage		
			This Year	Last Year	Average+
<u>GILA RIVER DRAINAGE</u>					
Agua Fria	Lake Pleasant	157.6	103.5	145.4	71.1
Granite	Watson Lake	4.7	1.7	4.6	2.5
Granite	Willow Creek	6.1	0.8	4.8	2.5**
Gila	San Carlos	1,073	657.6	813.0	232.8
Gila	Painted Rock Dam	2,492	0	2000	---
Salt (4)	Roosevelt, Apache, Canyon & Saguaro	1,755	1428	1,605	1,186
Verde (2)	Bartlett and Horseshoe	309.6	51.6	261.5	124.5
Salt and Verde	6 Salt River Project Reservoirs	2,065	1480	1,867	1,311
<u>COLORADO RIVER DRAINAGE</u>					
Colorado	Lake Havasu	619.4	553.9	557.1	543.8
Colorado	Lake Mohave	1,810	1696	1,741	1,658
Colorado	Lake Mead	26,159	23,457	22,789	17,576
Colorado	Lake Powell	25,002	23,831	20,888	10,038
Little Colorado	Lyman	30.6	23.4	24.3	15.0
Little Colorado	Show Low Lake	5.1	5.2	---	1.4
* Based on 15-year average, 1963-77 * Average is for less than 15 years of record. ** Adjusted Average.					
- 4 -					
- 1963-1977 period.					

SUMMARY OF SNOW MEASUREMENTS (COMPARISON WITH PREVIOUS YEARS) ABOUT FEBRUARY 1, 1981

RIVER BASIN and/or SUB-WATERSHED	Number of Courses Averaged	THIS YEAR'S SNOW WATER AS PERCENT OF	
		Last Year	Average
Gila	10	9	12
Salt	10	10	15
Verde	10	6	12
Little Colorado	5	20	30

SNOW ABOUT FEBRUARY 1, 1981

DRAINAGE BASIN and/or SNOW COURSE		Date of Survey	THIS YEAR		PAST RECORD	
NAME	Elevation		Snow Depth (Inches)	Water Content (Inches)	Water Content (Inches)	Last Year
<u>SALT RIVER</u>						
Baldy *	9220	1-28	7	1.6	6.7	5.3
BALDY SNOTEL	9220	1-30	---	2.9	8.0	---
Beaver Head	8000	1-30	1	0.2	4.5	2.5
BONITO ROCK SNOTEL	8270	---	---	---	---	---
Canyon Creek	7500	1-29	T	0.1	7.1	3.5
Canyon Point	7600	1-29	T	0.1	8.3	3.8**
Coronado Trail	8400	1-30	0	0.0	5.7	2.4
CORONADO TRAIL SNOTEL	8400	1-30	---	0.0	---	---
Forest Dale	6430	1-29	0	0.0	0.0	1.1
Ft. Apache	9160	1-28	10	2.0	6.7	5.6
Hannagan Meadows	9090	1-30	8	0.9	9.4	6.8**
HANNAGAN MEADOWS SNOTEL	8960	1-30	---	3.9	9.2	---
Hawley Lake	8250	1-28	2	0.4	10.8	5.7**
HAWLEY LAKE SNOTEL	8250	1-30	---	0.0	14.1	---
Heber	7640	1-29	1	0.2	7.7	3.5
HEBER SNOTEL	7640	1-30	---	0.0	8.7	---
Maverick Fork	9050	1-28	5	1.0	8.8	6.4
MAVERICK FORK SNOTEL	9200	1-31	---	2.3	9.4	---
McNary	7225	1-28	0	0.0	5.6	2.2
MCNARY SNOTEL	7225	1-30	---	0.0	5.3	---
Milk Ranch	7000	1-29	T	0.0	2.7	1.2
Mt. Ord (A)	11000	Not Scheduled			17.2	---
Nutrioso *	8500	1-30	0	0.0	3.8	1.8
Promontory Butte	7900	1-29	4	1.0	14.9E	9.5**
PROMONTORY BUTTE SNOTEL	7900	1-30	---	1.3	---	---
Smith Cienega (A)	9850	Not Scheduled			11.6	---
Sunrise Summit	10600	1-29	10	2.2	13.6	11.0**
Wilson Lake	9000	1-28	11	2.8	9.5	7.1**
Workman Creek	6900	1-26	0	0.0	4.3	5.0
WORKMAN CREEK SNOTEL	6900	1-30	---	0.0	5.0	---
<u>LOWER COLORADO RIVER</u>						
Bill Williams Intermediate	8550	1-30	3	0.5	---	6.3**
Bill Williams Summit	8950	1-30	8	1.0	---	7.5**
Chalender *	7100	1-29	2	0.1	5.8	2.3
Fort Valley	7350	1-29	2	0.3	5.2	1.7
Grand Canyon	7500	1-29	2	0.6	2.3	1.6
Williams Ski Run	7720	1-30	5	0.8	11.7	5.4**

+ 1963-77 15-year period. (*) Adjacent drainage. (**) 1963-77 Adjusted Average. (A) Aerial observation: water content estimated. E = estimate.

SNOW ABOUT FEBRUARY 1, 1981

DRAINAGE BASIN and or SNOW COURSE		THIS YEAR			PAST RECORD	
		Date of Survey	Snow Depth (Inches)	Water Content (Inches)	Last Year	Average +
<u>GILA RIVER</u>						
Bear Wallow	8100	LATE REPORT			4.0	3.4
Beaver Head	8000	1-30	1	0.2	4.5	2.5
Coronado Trail	8400	1-30	0	0.0	5.7	2.4
CORONADO TRAIL SNOTEL	8400	1-30	---	0.0	---	---
Emory Pass #1 *	7800	1-30	0	0.0	0.1	0.7
Emory Pass #2 *	7800	1-30	2	0.5	0.4	1.5
Frisco Divide	8000	1-29	1	0.2	4.3	2.1
FRISCO DIVIDE SNOTEL	8000	1-29	---	0.2	4.9	---
Hannagan Meadows *	9090	1-30	8	0.9	9.4	6.8**
HANNAGAN MEADOWS SNOTEL	8960	1-30	---	3.9	9.2	---
Hummingbird (A)	10550	2-1	T	0.1	8.4	10.4
LOOKOUT MOUNTAIN SNOTEL	8150	---	---	---	1.5	---
McKnight Cabin * (A)	9300	2-1	T	0.1	1.2	3.4**
Mogollon	7000	1-31	---	0.0E	0.0	0.9
Nutrioso	8500	1-30	0	0.0	3.8	1.8
Redstone Trail	8600	1-31	---	1.0E	6.8	5.6
Rose Canyon	7300	LATE REPORT			0.9	2.1
SIGNAL PEAK SNOTEL	8360	1-31	---	0.6	2.2	---
Silver Creek Divide	9070	1-31	---	1.4E	8.8	8.1**
SILVER CREEK DIVIDE SNOTEL	9070	1-31	---	1.4	7.6	---
State Line	8000	1-29	T	0.0	3.2	2.4
Whitewater (A)	10750	2-1	24	6.0	15.1	12.7**
<u>VERDE RIVER</u>						
Baker Butte	7330	1-29	1	0.2	9.4	5.1**
BAKER BUTTE SNOTEL	7330	1-30	---	0.2	8.0	---
Baker Butte #2	7700	1-29	2	0.6	14.4	8.2**
Camp Wood	5700	1-29	0	0.0	2.2	0.6
Chalender *	7100	1-29	2	0.1	5.8	2.3
Copper Basin Divide	6720	1-29	1	0.2	2.1	1.6
Fort Valley	7350	1-29	2	0.3	5.2	1.7
FRY SNOTEL	7200	1-31	---	0.2	9.5	---
Gaddes Canyon	7600	1-31	1	0.2	8.0	3.7
Happy Jack	7630	1-29	4	0.5	8.7	3.1
Iron Springs *	6200	1-29	T	0.0	0.0	0.6
Mingus Mountain	7100	1-31	T	0.1	1.9	0.7
Mormon Lake *	7350	1-29	3	0.3	7.9	3.7
Mormon Mountain	7500	1-29	2	0.3	11.1	4.4
MORMON MOUNTAIN SNOTEL	7500	1-30	---	0.3	12.1	---
Mormon Mtn. Summit #2	8470	Not Scheduled			---	---
Newman Park	6750	1-29	1	0.1	6.3	2.0
Snow Bowl #1	10260	1-29	10	1.5	12.1	7.0
Snow Bowl #2	11000	1-29	21	3.9	14.1	10.9**
SUGAR LOAF SNOTEL	6120	1-30	---	0.0	0.0	---
White Horse Lake Jct.	7180	1-30	T	0.1	---	2.6**
WHITE HORSE LAKE JCT. SNOTEL	7180	1-30	---	0.0	10.1	---
White Spar	6000	1-29	T	0.0	0.3	0.5
+ 1963-77 15-year period. (*) Adjacent drainage. (**) 1963-77 Adjusted Average. (A) Aerial observation: water content estimated. E = Estimate.						

SNOW ABOUT FEBRUARY 1, 1981

DRAINAGE BASIN and/or SNOW COURSE		THIS YEAR			PAST RECORD	
		Date of Survey	Snow Depth (Inches)	Water Content (Inches)	Water Content (Inches)	Last Year
<u>LITTLE COLORADO RIVER</u>						
Baldy	9220	1-28	7	1.6	6.7	5.3
BALDY SNOTEL	9220	1-30	---	2.9	8.0	---
Canyon Creek	7500	1-29	T	0.1	7.1	3.5
Canyon Point	7600	1-29	T	0.1	8.3	3.8**
Cheese Springs	8600	1-28	8	1.8	5.3	4.7**
Forest Dale	6430	1-29	0	0.0	0.0	1.1
Ft. Apache	9160	1-28	10	2.0	6.7	5.6
Fort Valley	7350	1-29	2	0.3	5.2	1.7
Happy Jack	7630	1-29	4	0.5	8.7	3.1
Heber	7640	1-29	1	0.2	7.7	3.5
HEBER SNOTEL	7640	1-30	---	0.0	8.7	---
Lake Mary	6970	1-29	1	0.2	4.1	---
McNary	7225	1-28	0	0.0	5.6	2.2
MCNARY SNOTEL	7225	1-30	---	0.0	5.3	---
Mormon Lake	7350	1-29	3	0.3	7.9	3.7
Mormon Mountain	7500	1-29	2	0.3	11.1	4.4
MORMON MOUNTAIN SNOTEL	7500	1-30	---	0.3	12.1	---
Mormon Mtn. Summit #2	8470	Not Scheduled		---	---	---
Nutrioso *	8500	1-30	0	0.0	3.8	1.8
Promontory Butte	7900	1-29	4	1.0	14.9E	9.5**
PROMONTORY BUTTE SNOTEL	7900	1-30	---	1.3	---	---
Snow Bowl #1	10260	1-29	10	1.5	12.1	7.0
Snow Bowl #2	11000	1-29	21	3.9	14.1	10.9**
Wilson Lake	9000	1-28	11	2.8	9.5	7.1**

+ 1963-77 15-year period. (*) Adjacent drainage. (**) 1963-77 Adjusted Average. (A) Aerial observation: water content estimated. E = Estimate.

SNOW ABOUT JANUARY 15, 1981

DRAINAGE BASIN and/or SNOW COURSE		THIS YEAR			PAST RECORD	
		Date of Survey	Snow Depth (Inches)	Water Content (Inches)	Water Content (inches)	Last Year
SALT RIVER						
Baldy *	9220	1-13	8	1.5	2.5	4.7
BALDY SNOTEL	9220	1-15	---	2.9	3.1	---
Beaver Head	8000	1-16	2	0.4	2.4	2.8
BONITO ROCK SNOTEL	8270	---	---	---	---	---
Canyon Creek	7500	1-20	0	0.0	4.4	3.4
Canyon Point	7600	1-20	0	0.0	4.8	3.6**
Coronado Trail	8400	1-16	1	0.2	2.7	2.7
CORONADO TRAIL SNOTEL	8400	1-15	---	0.0	2.0	---
Forest Dale	6430	1-15	0	0.0	0.0	1.8
Ft. Apache	9160	1-13	11	1.7	2.6	4.9
Hannagan Meadows	9090	1-16	8	1.3	5.6	5.8**
HANNAGAN MEADOWS SNOTEL	8960	1-15	---	3.6	5.6	---
Hawley Lake	8250	1-15	2	0.6	4.7	4.8**
HAWLEY LAKE SNOTEL	8250	1-15	---	1.4	8.7	---
Heber	7640	1-20	0	0.0	4.8	3.5
HEBER SNOTEL	7640	1-15	0	0.3	5.4	---
Maverick Fork	9050	Not Scheduled		---	---	5.6
MAVERICK FORK SNOTEL	9200	1-15	---	1.5	4.4	---
McNary	7225	1-15	0	0.0	2.9	2.7
MCNARY SNOTEL	7225	1-15	---	0.0	2.3	---
Milk Ranch	7000	1-15	0	0.0	1.2	1.9
Mt. Ord (A)	11000	Not Scheduled		---	---	---
Nutrioso *	8500	1-16	0	0.0	1.3	2.1
Promontory Butte	7900	1-20	3	0.9	10.7	7.0**
PROMONTORY BUTTE SNOTEL	7900	1-15	---	1.3	---	---
Smith Cienega (A)	9850	Not Scheduled		---	---	---
Sunrise Summit	10600	1-13	10	1.4	8.1	9.8**
Wilson Lake	9000	1-13	11	2.1	5.1	6.1**
Workman Creek	6900	Not Scheduled		---	1.4	5.0
WORKMAN CREEK SNOTEL	6900	1-15	---	0.5	1.9	---
LOWER COLORADO RIVER						
Bill Williams Intermediate	8550	1-15	0	0.0	---	5.2**
Bill Williams Summit	8950	1-15	6	1.4	---	6.1**
Chalender *	7100	1-15	0	0.0	2.6	2.3
Fort Valley	7350	1-15	0	0.0	2.4	1.6
Grand Canyon	7500	---	---	---	1.4	1.9
Williams Ski Run	7720	1-15	0	0.0	5.5	4.6**

+ 1963-77 15-year period. (*) Adjacent drainage. (**) 1963-77 Adjusted Average. (A) Aerial observation: water content estimated.

SNOW ABOUT JANUARY 15, 1981

DRAINAGE BASIN and/or SNOW COURSE		Date of Survey	THIS YEAR		PAST RECORD	
			Snow Depth (Inches)	Water Content (Inches)	Last Year	Average +
<u>GILA RIVER</u>						
Bear Wallow	8100	1-15	0	0.0	1.2	3.2
Beaver Head	8000	1-16	2	0.4	2.4	2.8
Coronado Trail	8400	1-16	1	0.2	2.7	2.7
CORONADO TRAIL SNOTEL	8400	1-15	---	0.0	2.0	---
Emory Pass #1 *	7800	1-15	1	0.2	0.0	1.0**
Emory Pass #2 *	7800	1-15	1	0.3	0.0	1.7**
Frisco Divide	8000	1-15	1	0.3	2.5	2.4
FRISCO DIVIDE SNOTEL	8000	1-15	---	0.5	4.3	---
Hannagan Meadows *	9090	1-16	8	1.3	5.6	5.8**
HANNAGAN MEADOWS SNOTEL	8960	1-15	---	3.6	5.6	---
Hummingbird (A)	10550	Not Scheduled			---	9.3**
LOOKOUT MOUNTAIN SNOTEL	8150	---	---	---	0.3	---
McKnight Cabin * (A)	9300	Not Scheduled			---	3.4**
Mogollon	7000	Not Scheduled			0.0	1.4
Nutrioso	8500	1-16	0	0.0	1.3	2.1
Redstone Trail	8600	Not Scheduled			4.0	5.2
Rose Canyon	7300	1-15	0	0.0	0.6	2.1
SIGNAL PEAK SNOTEL	8360	1-15	---	0.0	1.3	---
Silver Creek Divide	9070	Not Scheduled			5.7	7.2**
SILVER CREEK DIVIDE SNOTEL	9070	1-15	---	1.0	5.0	---
State Line	8000	1-15	1	0.1	2.2	2.5
Whitewater (A)	10750	Not Scheduled			---	11.0**
<u>VERDE RIVER</u>						
Baker Butte	7330	1-20	0	0.0	4.1	4.6**
BAKER BUTTE SNOTEL	7330	1-15	---	0.0	3.7	---
Baker Butte #2	7700	1-20	T	0.3	8.1	6.8**
Camp Wood	5700	1-15	0	0.0	---	0.9
Chalender *	7100	1-15	0	0.0	2.6	2.3
Copper Basin Divide	6720	1-15	0	0.0	0.0	2.0
Fort Valley	7350	1-15	0	0.0	2.4	1.6
FRY SNOTEL	7200	1-15	---	0.0	5.4	---
Gaddes Canyon	7600	1-15	0	0.0	3.4	3.6
Happy Jack	7630	1-15	0	0.0	4.1	3.0
Iron Springs *	6200	1-15	0	0.0	0.0	0.7
Mingus Mountain	7100	1-15	0	0.0	0.0	1.1
Mormon Lake *	7350	1-15	1	0.2	3.8	3.5
Mormon Mountain	7500	1-15	T	0.0	5.8	4.1
MORMON MOUNTAIN SNOTEL	7500	1-15	---	0.0	6.9	---
Mormon Mtn. Summit #2	8470	Not Scheduled			---	---
Newman Park	6750	1-15	0	0.0	2.6	2.4
Snow Bowl #1	10260	1-15	7	1.3	7.0	6.0
Snow Bowl #2	11000	1-15	21	3.3	10.7	9.2**
SUGAR LOAF SNOTEL	6120	1-15	---	0.0	0.7	---
White Horse Lake Jct.	7180	1-15	0	0.0	---	2.4**
WHITE HORSE LAKE JCT. SNOTEL	7180	1-15	---	0.0	---	---
White Spar	6000	1-15	0	0.0	0.0	1.0

+ 1963-77 15-year period. (*) Adjacent drainage. (**) 1963-77 Adjusted Average. (A) Aerial observation: water content estimated

SNOW ABOUT JANUARY 15, 1981

DRAINAGE BASIN and/or SNOW COURSE		THIS YEAR			PAST RECORD	
		Date of Survey	Snow Depth (Inches)	Water Content (Inches)	Water Content (Inches)	Last Year
NAME	Elevation					Average +
<u>LITTLE COLORADO RIVER</u>						
Baldy	9220	1-13	8	1.5	2.5	4.7
BALDY SNOTEL	9220	1-15	---	2.9	3.1	---
Canyon Creek	7500	1-20	0	0.0	4.4	3.4
Canyon Point	7600	1-20	0	0.0	4.8	3.6**
Cheese Springs	8600	1-13	9	1.6	2.8	4.2**
Forest Dale	6430	1-15	0	0.0	0.0	1.8
Ft. Apache	9160	1-13	11	1.7	2.6	4.9
Fort Valley	7350	1-15	0	0.0	2.4	1.6
Happy Jack	7630	1-15	0	0.0	4.1	3.0
Heber	7640	1-20	0	0.0	4.8	3.5
HEBER SNOTEL	7640	1-15	0	0.3	5.4	---
Lake Mary	6970	1-15	T	0.0	0.1	---
McNary	7225	1-15	0	0.0	2.9	2.7
MCNARY SNOTEL	7225	1-15	---	0.0	2.3	---
Mormon Lake	7350	1-15	1	0.2	3.8	3.5
Mormon Mountain	7500	1-15	T	0.1	5.8	4.1
MORMON MOUNTAIN SNOTEL	7500	1-15	---	0.0	6.9	---
Mormon Mtn. Summit #2	8470	Not Scheduled			---	---
Nutrioso *	8500	1-16	0	0.0	1.3	2.1
Promontory Butte	7900	1-20	3	0.9	10.7	7.0**
PROMONTORY BUTTE SNOTEL	7900	1-15	---	1.3	---	---
Snow Bowl #1	10260	1-15	7	1.3	7.0	6.0
Snow Bowl #2	11000	1-15	21	3.3	10.7	9.2**
Wilson Lake	9000	1-13	11	2.1	5.1	6.1**

+ 1963-77 15-year period. (*) Adjacent drainage. (**) 1963-77 Adjusted Average. (A) Aerial observation: water content estimated.

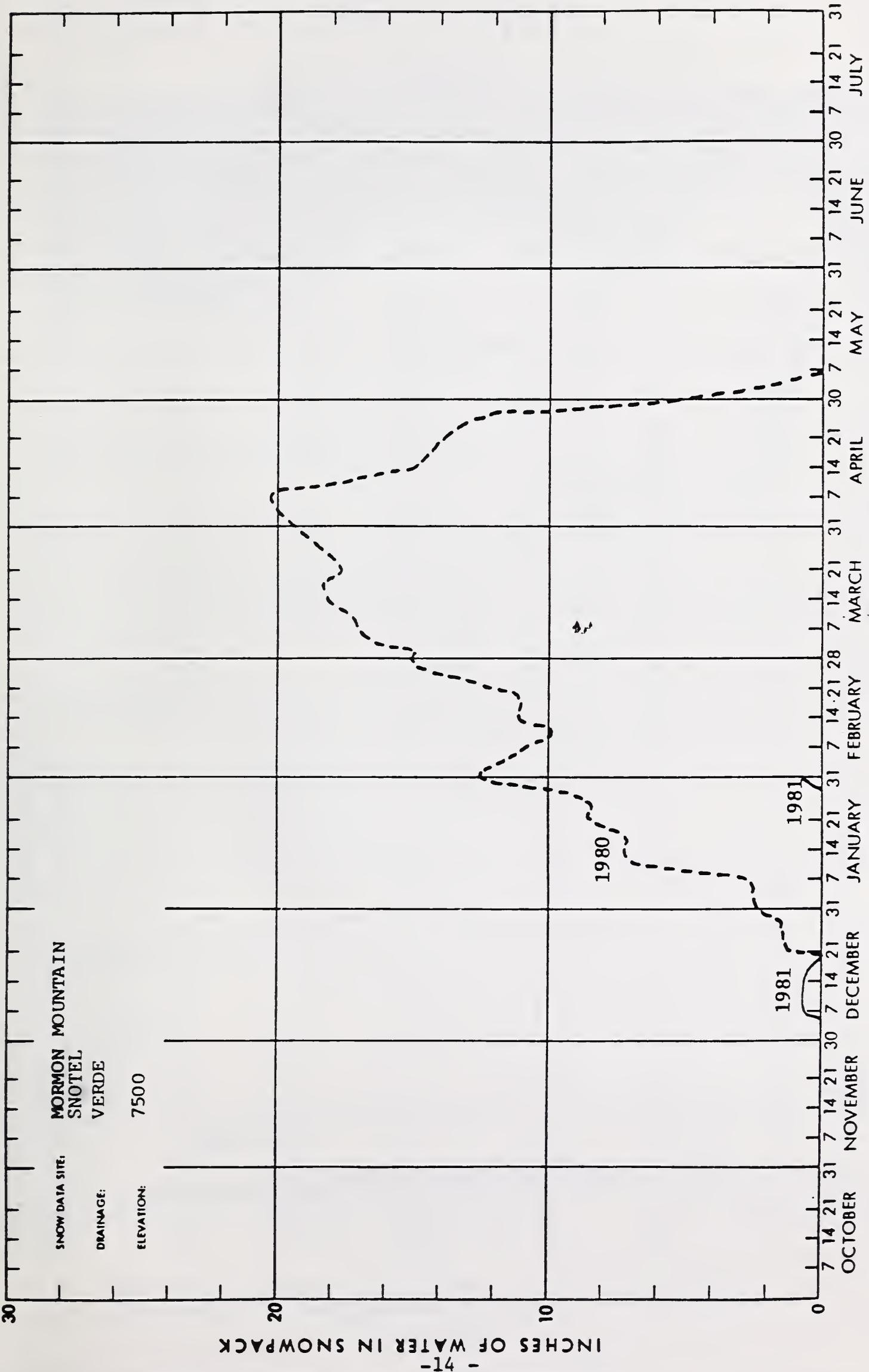
PRECIPITATION (Inches) ABOUT FEBRUARY 1, 1981

DRAINAGE BASIN and PRECIPITATION GAGE LOCATION	ELEVATION	CURRENT INFORMATION			FROM APPROX NOV 1 TO DATE		
		Date of Reading	Month's Precipitation	Average +	This Year	Average +	Percent of Average
<u>GILA RIVER</u>							
Silver Creek Divide	9000	LATE REPORT	2.07*			8.26*	
Hannagan Meadows **	9030	1/30	1.30	2.30	4.43	7.36	60
Frisco Divide **	8000	1/29	0.79	1.02	1.71	3.32	51
<u>SALT RIVER</u>							
Canyon Point	7600	1/29	1.36	2.96*	2.95	10.13*	29
Hannagan Meadows**	9030	1/30	1.30	2.30	4.43	7.36	60
Little Wildcat (Heber Snow Course)	7600	1/29	1.19	2.65	3.23	9.02	36
Maverick Fork	9050	1/28	1.25	2.39	3.40	7.72	44
Workman Creek **	6970	1/26	2.60	3.30	4.15	10.18	41
Wilson Lake	9100	1/28	0.30	1.98*	2.14	7.00*	31
<u>VERDE RIVER</u>							
Baker Butte	7300	1/29	.90	2.70*	2.08	9.52*	22
Copper Basin Divide	6720	1/29	.80	1.75	1.93	6.80	28
Fort Valley **	7350	1/29	.89	1.44	1.77	5.22	34
Happy Jack **	7480	1/29	1.14	2.23	1.72	7.12	25
Mingus Mountain	7660	1/31	1.03	1.45	1.24	5.12	24
Mormon Mountain	7500	1/29	.97	2.89	2.14	10.44	20
White Horse Lake Jct.**	7150	1/30	.65	2.40	2.32	7.30	32
<u>LITTLE COLORADO</u>							
Greer Lakes	8500	1/28	.30	.95	1.49	3.92	38
Little Wildcat (Heber Snow Course)	7600	1/29	1.19	2.65	3.23	9.02	36
Sheep Crossing (Baldy Snow Course)	9125	1/28	.60	2.02	2.97	6.93	43

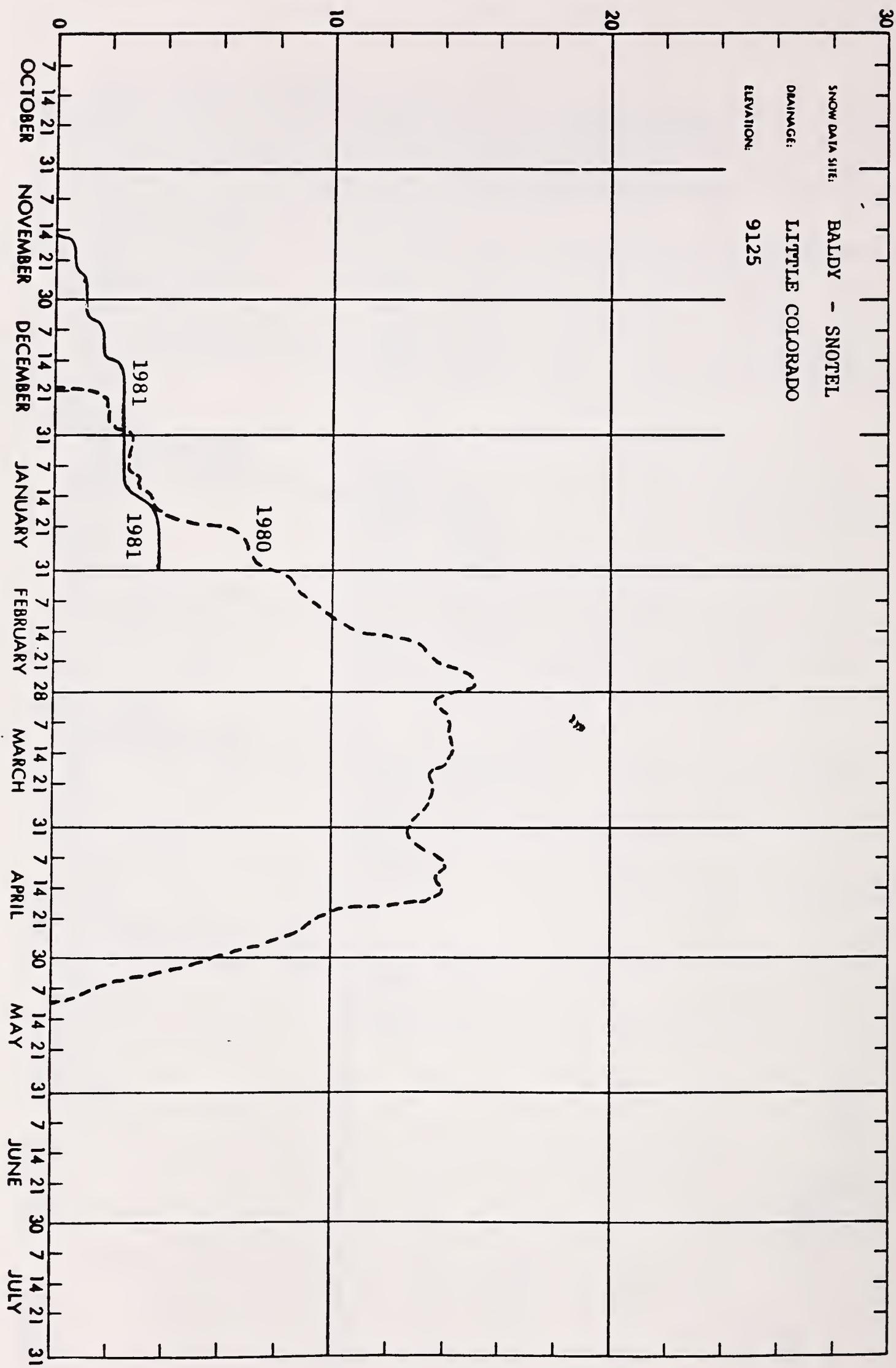
+ 1963-77 Average
 * Adjusted Average
 ** Data Supplied by
 U.S. Forest Service

PRECIPITATION (Inches) ABOUT FEBRUARY 1, 1981 (SNOTEL SITES)

DRAINAGE BASIN and PRECIPITATION GAGE LOCATION	ELEVATION	CURRENT INFORMATION			FROM APPROX NOV 1 TO DATE			
		Date of Reading	Month's Precipitation	Average +	This Year	Average +	Percent of Average	
GILA RIVER								
<u>SNOTEL SITES</u>								
Coronado Trail	8400	1/31	0.5	---	1.4	---	---	
Hannagan Meadows	8960	1/31	1.6	---	3.6	---	---	
Frisco Divide	8000	1/31	0.9	---	2.0	---	---	
Silver Creek Divide	9000	1/31	1.3	---	1.9	---	---	
Lookout Mountain	8150	1/31	---	---	---	---	---	
Signal Peak	8360	1/31	1.3	---	1.6	---	---	
SALT RIVER								
<u>SNOTEL SITES</u>								
Promontory Butte	7930	1/31	1.5	---	2.6	---	---	
Heber	7640	1/31	1.3	---	3.4	---	---	
Hawley Lake	8250	1/31	0.8	---	2.8	---	---	
McNary	7200	1/31	0.9	---	3.6	---	---	
Bonito Rock	8270	1/31	1.2	---	3.2	---	---	
Hannagan Meadows	8960	1/31	1.6	---	3.6	---	---	
Maverick Fork	9050	1/31	1.2	---	3.1	---	---	
Coronado Trail	8400	1/31	0.5	---	1.4	---	---	
Workman Creek	6900	1/31	2.2	---	3.5	---	---	
VERDE RIVER								
<u>SNOTEL SITES</u>								
White Horse Lake Jct.	7180	1/31	0.5	---	2.7	---	---	
Fry	7200	1/31	0.4	---	2.2	---	---	
Mormon Mountain	7500	1/31	1.8	---	2.8	---	---	
Sugar Loaf	6120	1/31	0.4	---	1.3	---	---	
Baker Butte	7300	1/31	1.1	---	2.1	---	---	
LITTLE COLORADO								
<u>SNOTEL SITES</u>								
Baldy	9125	1/31	1.1	---	3.0	---	---	
McNary	7200	1/31	0.9	---	3.6	---	---	
Heber	7640	1/31	1.3	---	3.4	---	---	
Promontory Butte	7930	1/31	1.5	---	2.6	---	---	



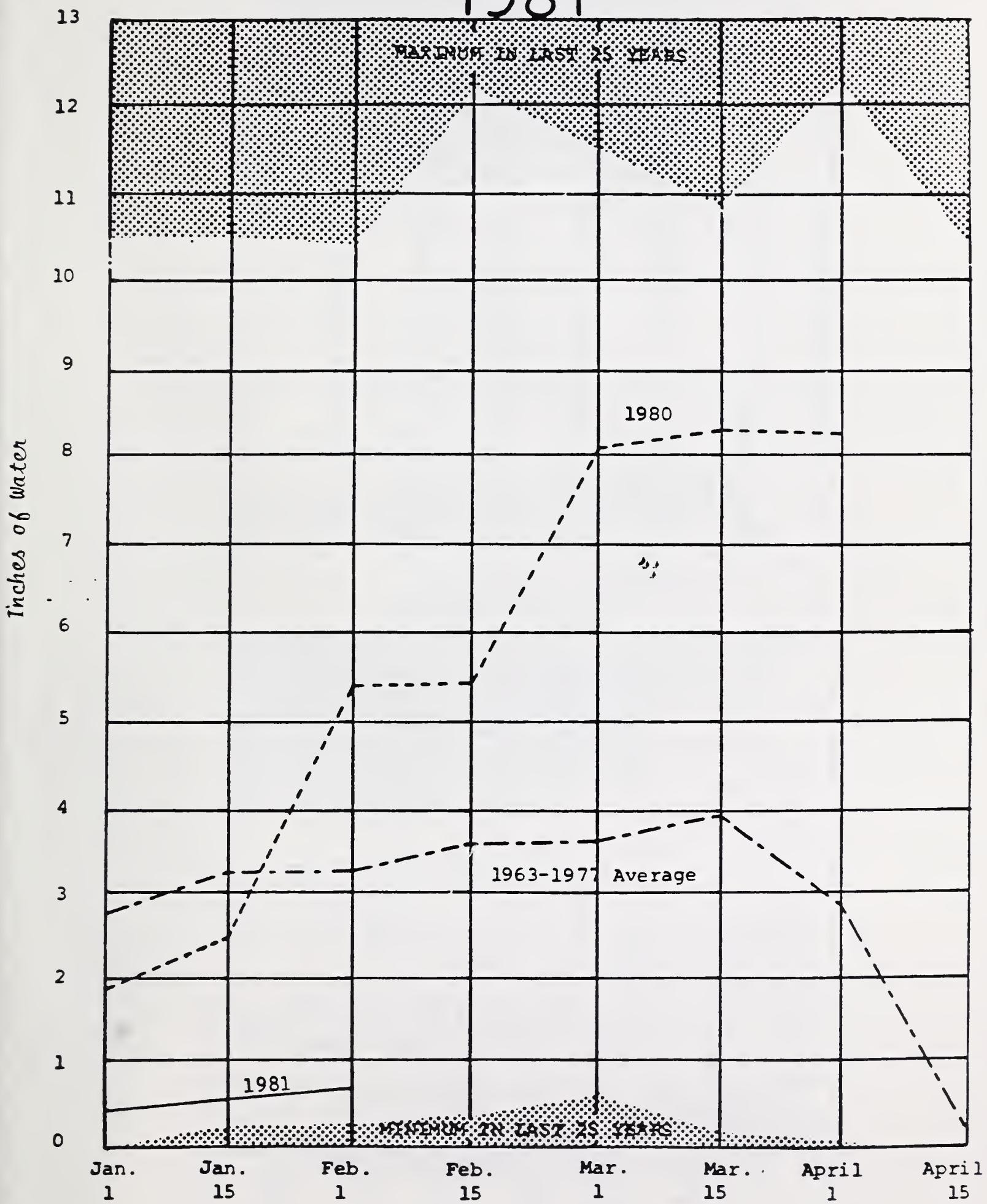
INCHES OF WATER IN SNOWPACK



AVERAGE SNOW COVER

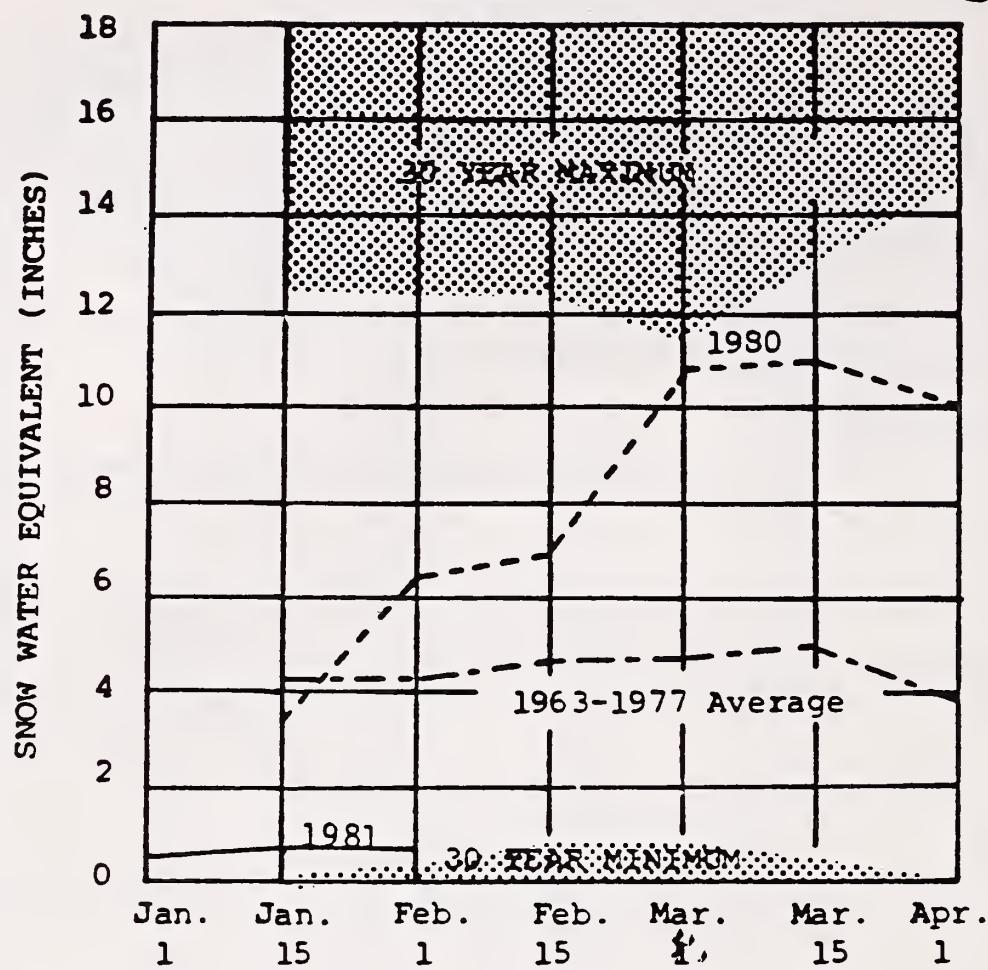
ARIZONA

1981

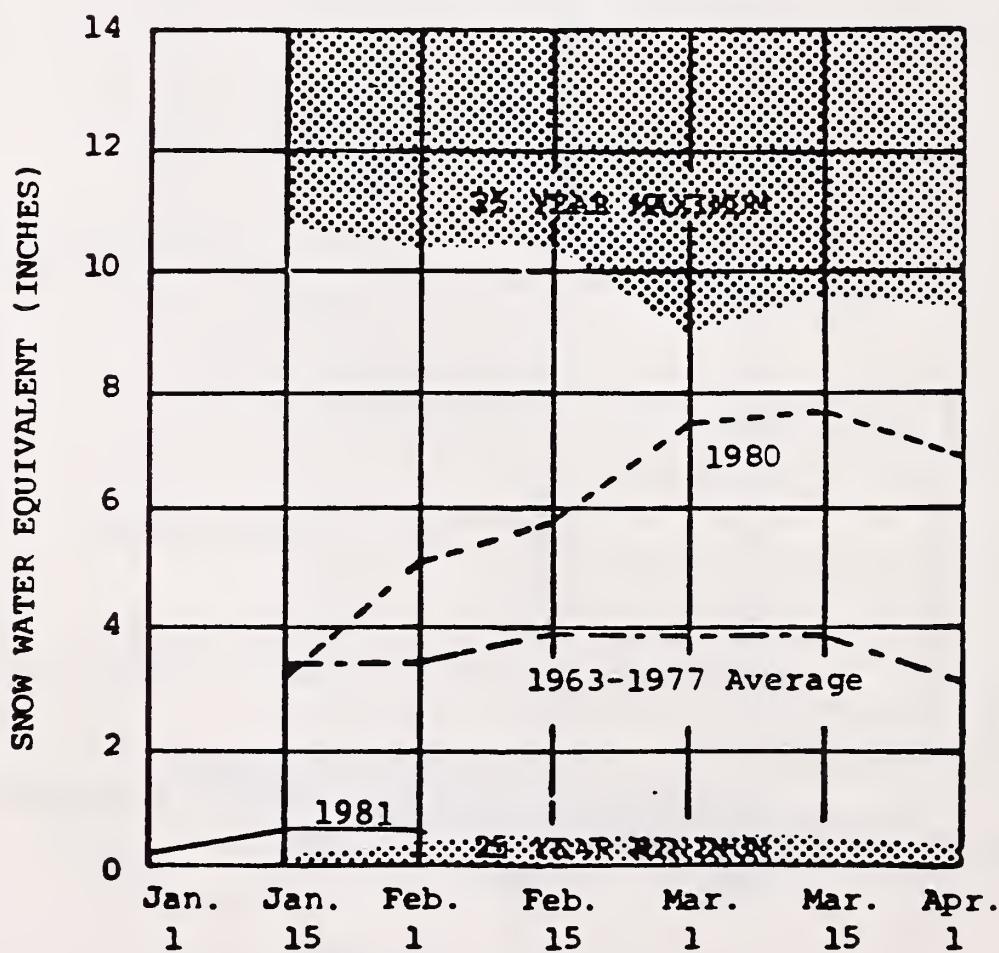


This graph represents the average snow water content on eleven selected snow courses on Arizona Sub-Watersheds.

1981 WATERSHED SNOW COVER



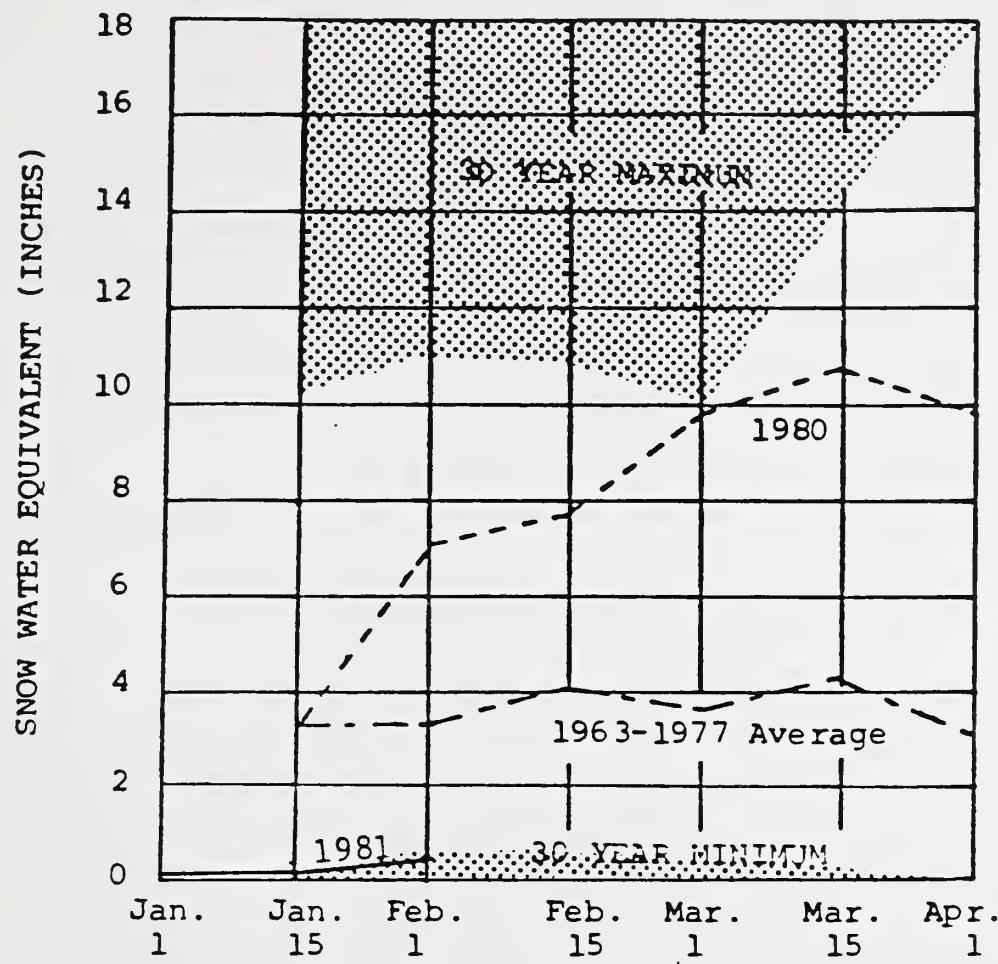
SALT RIVER



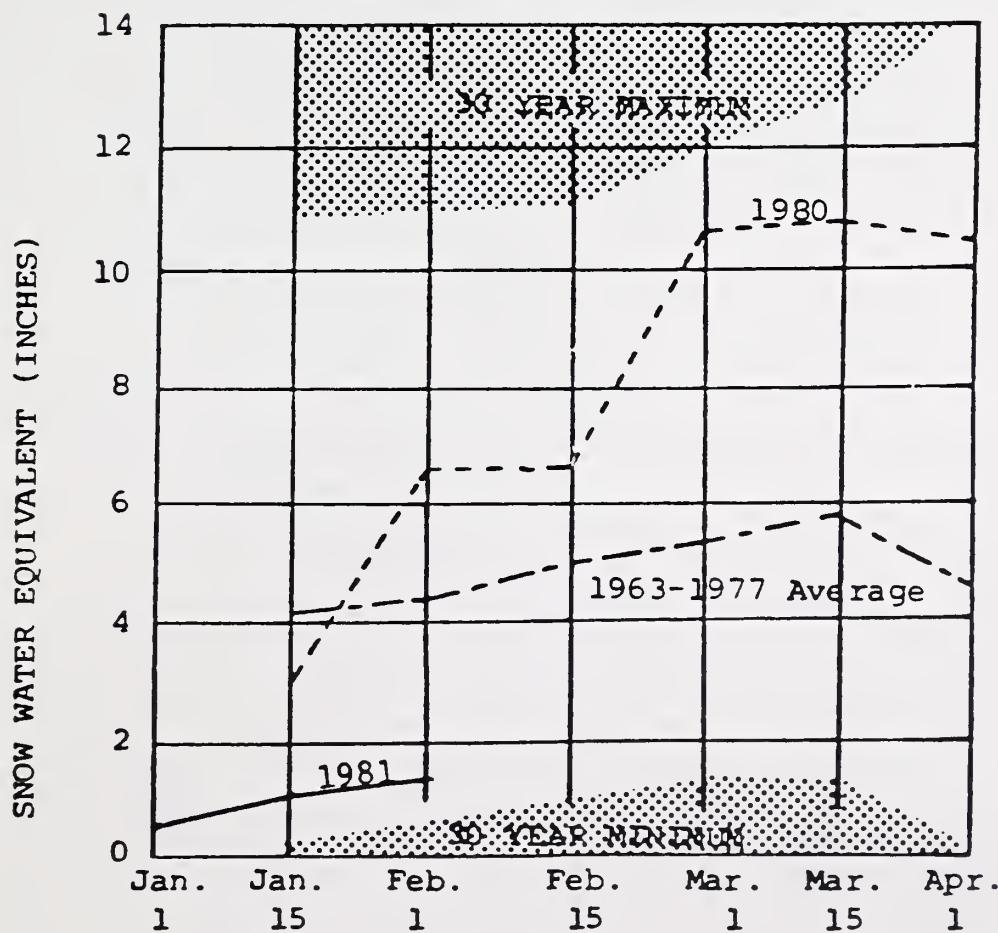
GILA RIVER

BASED ON SELECTED SNOW SURVEY COURSES

1981 WATERSHED SNOW COVER

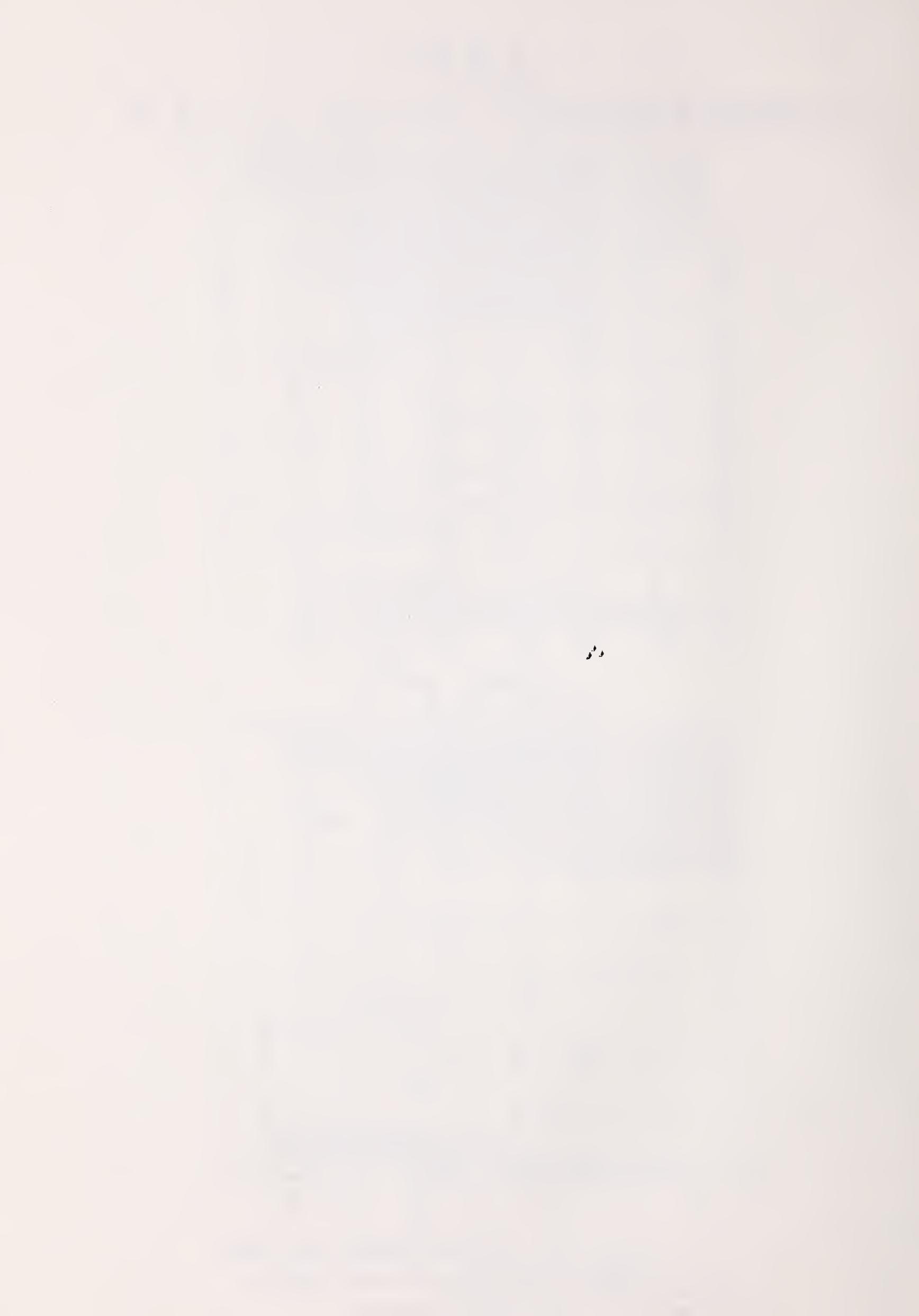


VERDE RIVER



LITTLE COLORADO RIVER

BASED ON SELECTED SNOW SURVEY COURSES



14

13

12

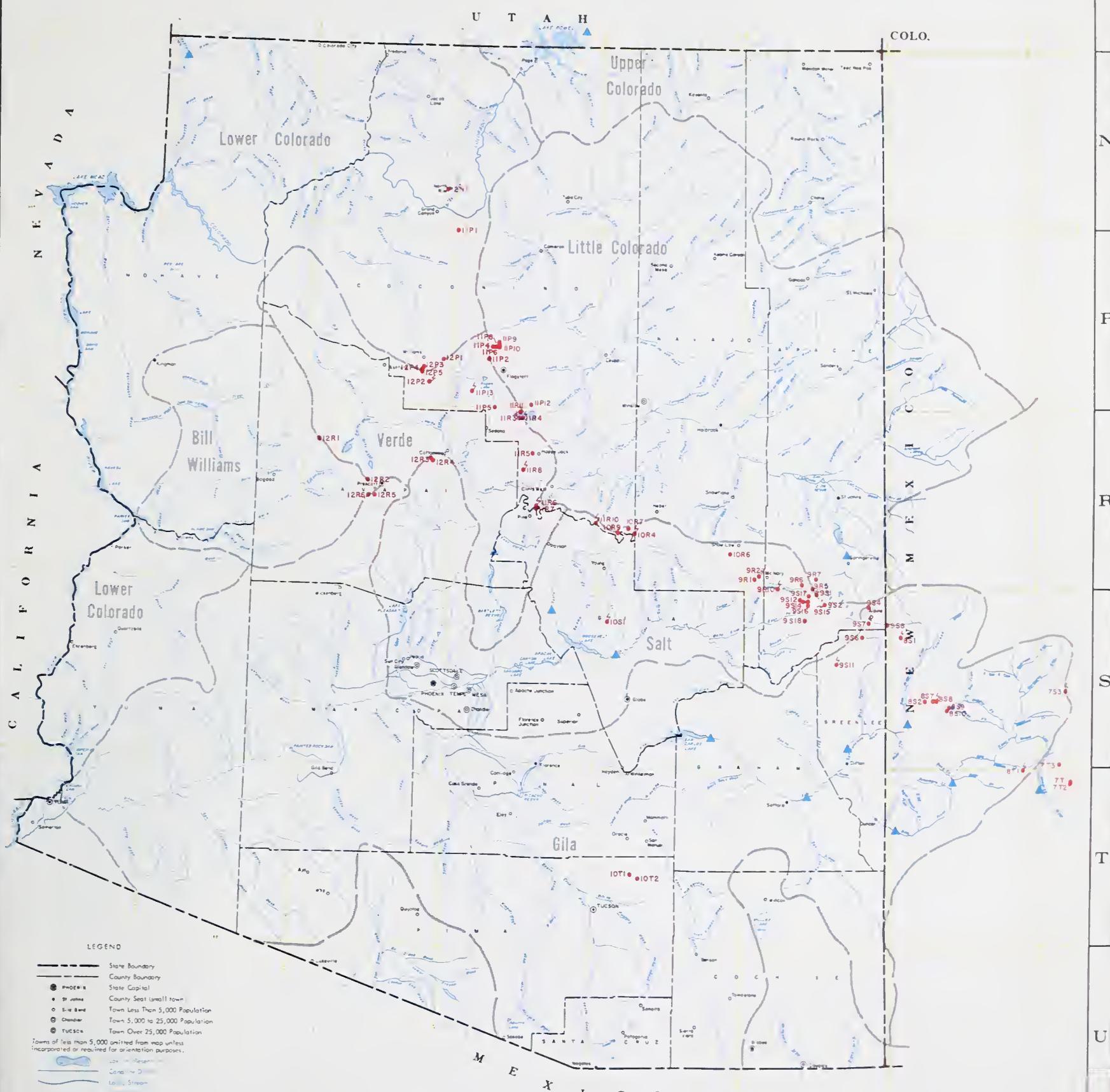
11

10

9

8

7



**SNOW COURSES AND RELATED
DATA MEASURING SITES
ARIZONA
1981**

INDEX TO SNOW COURSES

NUMBER	NAME	SEC.	TWP.	RGE.	ELEV.	DRAINAGE	OBSERVER	RECORD BEGAN
11P10A	Agassiz	32	23N	7E	11200	Little Colorado	SCS-CF*	1968
11R6PSPRT	Baker Butte	4	12N	9E	7300	Verde	SCS	1966
11R7	Baker Butte #2	9	12N	9E	7700	Verde	SCS	1971
9S1APSPRT	Baldy	28	7N	27E	9125	Little Colorado	SCS	1950
9S15	Baldy #2	12	6N	26E	9750	Little Colorado	SCS	1963
9S16	Baldy #3	13	6N	26E	10950	Little Colorado	SCS	1963
10T1	Bear Wallow	6	12S	16E	8100	Gila	FS	1948
9S6	Beaver Head	13	4N	30E	8000	San Francisco	FS	1938
12P5	Bill William Intermediate	17	21N	2E	8550	Cataract	FS	1967
12P4	Bill Williams Summit	17	21N	2E	8950	Verde	FS	1967
9S18PSPRT	Bonito Rock		5N	26E	8270	Salt	SCS	1979
12N1	Bright Angel	34	33N	3E	8400	Bright Angel Creek	NPS	1947
12R1	Camp Wood	3	16N	6W	5700	Verde	FS	1946
10R7	Canyon Creek #2	18	11N	15E	7500	Little Colorado	SCS	1958
10R9P	Canyon Point	28	11N	14E	7600	Salt	SCS	1967
12P1	Chalender	27	22N	3E	7100	Verde	FS	1947
9R7	Cheese Springs	28	8N	27E	8600	Little Colorado	SCS	1969
12R6P	Copper Basin Divide	23	13N	3W	6720	Verde	SCS	1963
9S7PSPRT	Coronado Trail	26	5N	30E	8000	San Francisco	FS	1938
7T1	Emory Pass #1	16	16S	9W**	7800	Mimbres	SCS	1967
7T2	Emory Pass #2	16	16S	9W**	7800	Mimbres	SCS	1967
11P13PSPRT	Fry	35	20N	5E	7220	Verde	SCS	1978
10R6	Forest Dale	2	9N	21E	6430	Salt	BIA	1939
9R5	Ft. Apache	18	7N	27E	9160	Little Colorado	SCS	1951
11P2P	Ft. Valley	22	22N	6E	7350	Little Colorado	FS	1947
8S1PSPRT	Frisco Divide	31	6S	20W**	8000	San Francisco	FS	1938
12R4	Gaddes Canyon	11	15N	2E	7600	Verde	SCS	1954
11P1	Grand Canyon	21	30N	4E	7500	Hance Creek	NPS	1947
9S11PSPRT	Hannagan Meadows	19	3N	29E	9090	San Francisco	FS	1964
11R5P	Happy Jack	30	16N	9E	7630	Verde	FS	1951
9R10PSPRT	Hawley Lake	13	7N	24E	8300	Salt	BIA	1966
10R4PSPRT	Heber	28	11N	15E	7600	Little Colorado	SCS	1950
8S9A	Hummingbird	19	11S	17W**	10550	Gila	SCS	1964
11P9P	Inner Basin #1	28	23N	7E	10000	Little Colorado	SCS-CF*	1967
11P8P	Inner Basin #2	28	23N	7E	9750	Little Colorado	SCS	1967
12R2	Iron Springs	22	14N	3W	6200	Little Colorado	SCS	1946
11P12	Lake Mary	21	19N	9E	6930	Little Colorado	SCS	1975
7S3PSPRT	Lookout Mountain	1	10S	10W	8500	Gila	SCS	1978
9S2APSPRT	Maverick Fork	13	6N	27E	9150	Salt	SCS	1950
7T3A	McKnight Cabin	10	15S	10W**	9300	Mimbres	SCS	1967
9R2PSPRT	McNary	23	8N	23E	7200	Salt	BIA	1939
9R1	Milk Ranch	33	8N	23E	7000	Salt	BIA	1941
12R3	Mingus Mountain	3	15N	2E	7100	Verde	SCS	1947
8S2	Mogollon	2	11S	19W**	7000	San Francisco	SCS	1953
11R4	Mormon Lake	13	18N	8E	7350	Little Colorado	SCS	1947
11R3APSPRT	Mormon Mountain	14	18N	8E	7500	Verde	SCS	1950
11R11	Mormon Mountain Summit #2	2	18N	8E	8470	Little Colorado	SCS	1975
9S12A	Mt. Ord	4	6N	26E	11200	Salt	SRP-SCS	1966
11P5	Newman Park	25	19N	6E	6750	Verde	SCS	1963
9S4	Nutrioso	23	6N	30E	8500	San Francisco	FS	1938
11R10PSPRT	Promontory Butte	5	11N	13E	7930	Little Colorado	SCS	1973
8S7	Redstone Trail	5	11S	18W**	8600	San Francisco	SCS	1961
10T2	Rose Canyon	15	12S	16E	7300	Gila	FS	1948
8T1PSPRT	Signal Peak	13	16S	13W	8360	Gila	SCS	1977
8S8PSPRT	Silver Creek Divide	4	11S	18W**	9000	San Francisco	SCS	1964
9S14A	Smith Cienega	10	6N	26E	10050	Salt	SRP-SCS	1966
11P4	Snow Bowl #1	36	23N	6E	10260	Verde	FS	1961
11P6	Snow Bowl #2	31	23N	7E	11000	Verde	FS	1965
9S8	State Line	6	6S	21W**	8000	San Francisco	FS	1938
9S17	Sunrise Summit	36	7N	26E	10600	Salt	SCS	1972
11R8PSPRT	Sugarloaf	8	8E	14N	6120	Verde	SCS	1978
12P2PSPRT	White Horse Lake Jct.	2	20N	2E	7180	Verde	FS	1967
12R5	White Spar	19	13N	2W	6000	Verde	SCS	1963
8S10A	Whitewater	19	11S	17W**	10750	Gila	SCS	1964
12P3	Williams Ski Run	9	21N	2E	7720	Cataract	FS	1967
9R6P	Wilson Lake	4	7N	26E	9000	Salt	SCS	1966
10S1PSPRT	Workman Creek	33	6N	14E	6900	Salt	FS	1952

A Aerial Snow Depth Marker

P Precipitation Storage Gage

R Radio Telemetry (SNOWTEL)

SP Snow Pressure Pillow

T Temperature

** NM Principal Meridian

* City of Flagstaff

The Following Organizations Cooperate in the Arizona Snow Survey Work

FEDERAL

Department of Agriculture
Soil Conservation Service
Forest Service
 Apache-Sitgreaves Forest
 Coconino Forest
 Coronado Forest
 Gila Forest
 Kaibab Forest
 Prescott Forest
 Rocky Mountain Forest and Range Experiment Station
 Tonto Forest
Department of Commerce
 NOAA, National Weather Service
Department of Interior
 Bureau of Reclamation
 Region 111
 Geological Survey
 Arizona District
 New Mexico District
 Bureau of Indian Affairs
 Fort Apache Reservation
 San Carlos Irrigation Project
 National Park Service
 Grand Canyon National Park
 Gila Water Commissioner
 Safford, Arizona

STATE

Arizona Game and Fish Department
Arizona State Parks Board
Arizona Water Commission
University of Arizona
 Arizona Agricultural Experiment Station
 Water Resource Research Center
 Department of Watershed Management

MUNICIPAL

City of Flagstaff

IRRIGATION PROJECTS

Salt River Valley Water User's Association
 Phoenix, Arizona
San Carlos Irrigation and Drainage District
 Coolidge, Arizona
Maricopa County Municipal Water Conservation District

PRIVATE

Southwest Forest Industries, Inc.
 McNary, Arizona
Fort Apache Indian Reservation
 White Mountain Recreation Enterprises

Other organizations and individuals furnish valuable information for
the snow survey reports. Their cooperation is gratefully acknowledged.

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—
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with the Snow Survey"



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